



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
MARCH 2, 1995, 9:00 A.M.
EXECUTIVE CONFERENCE ROOM**

Present: R. A. Welke R. E. Maki W. C. Turner (C.J. Arnold)
 G. D. Taylor L. A. Kinney L. R. Brown
 P. Miller D. Vandenberg L. Galehouse (J.D. O'Doherty)

Guests: H. Linne

OLD BUSINESS

1. Approval of the Minutes of the February 2, 1995, Meeting - R. Welke

Minutes of the February 2, 1995, meeting were approved as written.

2. Detail 7 Concrete Repair - W. Turner

Background Information

This item was initially discussed at the January 5, 1995, EOC meeting as an expressed concern presented by Jerry Dobie, regarding the continued use of Detail 7, Transverse Joint Repair. Specific reference was made to the experimental project conducted on segments of M-50. The project's final report, completed in 1985, contains specific recommendations for surface joint repair (Detail 7) and full-depth joint repairs (Detail 8). Detail 7 should be used to address longitudinal joint repairs only, and Detail 8 should be used as the recommended treatment method for all other repairs. It was also noted that additional cost is a consideration and must be assessed in terms of its total implication for statewide application. The Design Division was given the task to investigate the use and application of these details, to provide an assessment, including cost information (life-cycle cost), and to submit recommendations to EOC for consideration.

Bill Turner presented for discussion, his finding resulting from an assessment of trunkline projects let in calendar year 1994 and includes the following:

- The comparison of average cost for Detail 7 or Detail 8 is approximately 2-to-1.
- The added cost, Detail 7 vs Detail 8, for maintaining traffic are negligible.
- There is some opinion that the performance of Detail 7s can be improved by paying more careful attention to the particular problems of the pavement where we are specifying joint repairs. That is, only specify Detail 7s where they belong, as opposed to using them in situations where the joint is likely to deteriorate further and cause premature failure of the repair. The correct conditions for Detail 7 use can be detected by

a trained individual performing careful study of the history and present condition of candidate pavements.

- There is also some opinion that we do a significant amount of Detail 8 joint repair, due to either pavement expansion causing a bump, or poorly constructed repairs and pavement contraction causing a depression that needs filling later. This school would argue that converting to all Detail 8s does not cause all the problems to go away.

In summary, the conclusion/recommendations presented includes the following:

- Detail 8s are more cost-effective.
- Suggest and encourage district personnel to consider the use of a higher percentage of Detail 8 on highly congested roadways, i.e. freeway segments.

ACTION: The EOC recommends during the project development phase for projects on the National Highway System (NHS), that consideration should be given in using Detail 8 in lieu of Detail 7 where impact of traffic volumes and project time constraints are significant to justify the additional costs.

3. **Modification of Review Procedure for Special Provisions - D. Poland**

The EOC approved the proposed change to the procedure as amended.

ACTION: D. Poland will revise procedure as amended and distribute.

NEW BUSINESS

1. **Research Report No. R-1335, Evaluation of Galvanized Pedestrian Bridges, Research Project 73 G-197 - C. Roberts**

This report compares the performance of galvanized structural T's in a truss-type pedestrian bridge to other structural shapes and types of coating. In 1973, the department developed a work plan to determine whether galvanized structural T's on a test bridge would perform better than welded pipe trusses on pedestrian bridges. The purpose of this project is to compare structural differences, protection methods and assembly procedures using only five control structures.

Based on the data available, the researchers concluded that the type of protective coating is more important than the structural design or fabrication

procedure in providing extended corrosion control. The use of galvanizing and the other experimental features did not increase the cost of the project as expected, and the actual cost was 15 percent under the estimate (\$50,000).

Our current view on galvanizing as a protective coating is that it functions like a zinc primer and requires two additional coats of "paint" on top of it to provide satisfactory, long-term performance. A zinc-rich organic primer accomplishes the same purpose as galvanizing, and since 1984, we have recommended coating all structural steel with a three-coat epoxy zinc-rich system for maximum cost-effective protection. If a structure is galvanized, we recommend adding a tie coat with intermediate and top coats for maximum protection and performance.

ACTION: The EOC approved Research Report No. R-1335 as written.

2. **Research Report No. R-1334, Evaluation of Glasgrid Bituminous Pavement Reinforcement Mesh and a Bituminous Separation Course With and Without Latex, Research Projects 88 NM-845 and 89 D-56 - C. Roberts**

This project was initiated in 1988 to evaluate the use of "Glasgrid" as a high strength grid reinforcement mesh for bituminous overlays. In 1989 it was expanded to include an evaluation of the use of a Modified Bituminous Base Course (9A) as a separation course for reducing reflective cracking in a bituminous overlay of an existing pavement.

The Glasgrid reinforcement mesh, the bituminous separation course with and without latex, and a control section were placed on a project that included concrete joint and concrete pavement repair with bituminous resurfacing on M-52 in Saginaw County during October and November of 1989.

Based on the results of this evaluation of five methods of reflective crack retardation, the following conclusions are drawn:

1. Glasgrid Type 8502 reinforcement mesh was the least effective and most costly method of reducing reflective cracking. Glasgrid Type 8501 reinforcement mesh was fourth best in reducing reflective cracking and was also fourth in cost effectiveness.
2. The most cost effective measure was the bituminous separation course without latex which was also best in reducing reflective cracking. The bituminous separation course with latex was second best in reducing reflective cracking and third in cost effectiveness.
3. The conventional joint and crack repair (MDOT Detail 7 and Detail 8) was second best in cost effectiveness and third best in reducing reflective cracking.
4. As of the April, 1993, inspection, the reflective cracks in all of the sections had not spalled at the edges or faulted.

Based on the results of this evaluation of five methods of reflective crack retardation, the following recommendations are made:

1. Based on the results of this field trial, further use of Glasgrid reinforcement mesh should not be considered.
2. Joint and crack repair, such as the conventional partial and full-depth (MDOT Detail 7 and Detail 8) used on sections of this job, and bituminous separation course with and without latex can be recommended on the basis of this evaluation.

ACTION: The EOC approved research report No. R-1334 as written. The Bituminous Advisory Committee is directed to review and consider recommendations on bituminous separation course and advise the Materials and Technology Division relative to any committee action.

The New Materials Committee is directed to send a letter to the manufacturer and suppliers of this material, Glasgrid, stating that it will not be considered for further use by the Michigan Department of Transportation.

3. **A.W.I. for US-31, In-Place Recycling Specifications in Muskegon County - L. Brown/D. Coleman**

The Grand Rapids District is proposing to let two separate resurfacing projects on US-31 in Muskegon County this construction season. These projects will be funded as preventative maintenance jobs. One project will involve milling and resurfacing of one direction of US-31 and the other direction will include an experimental in-place recycling process. There was a discussion regarding imposing different specifications for these two projects, but it was decided that both projects will be expected to meet essentially the same AWI requirements.

ACTION: EOC approved the proposed projects. Doug Coleman will provide the necessary specifications and requirement for AWI in these projects.

4. **Life-Cycle/User Cost - R. Welke**

R. Welke expressed the importance of projects planned and constructed based on an evaluation of the projects life-cycle and users costs. There are several task groups presently working on various issues in which life-cycle/users cost is a major consideration, such as, the Maki/Dobie committee addressing the issue of maintaining traffic on high-impact construction projects. Bil Turner is presently chairing a group investigating ways to implement life-cycle and users cost as part of our program development process.

ACTION: Bil Turner is directed to coordinate his efforts with the Maki/Dobie committee and to continue his efforts to establish procedures that incorporate life-cycle and users cost in our project development process.

5. **Budget Item for QC/QA on Bituminous Projects - P. Miller**

Present construction procedures allow for payments of QC/QA requirements on bituminous projects as a payment adjustment to the contract. In view of the proposed bituminous QC/QA specification intended to be required for all MDOT bituminous projects (refer to EOC New Business Item No. 2, January 5, 1995, meeting), it is recommended that a budget item for QC/QA requirement be allocated.

ACTION: EOC approved the proposed recommendations and requests the Design/Construction Divisions to coordinate and develop an implementation plan to address bituminous QC/QA specification requirements.

6. **Construction Zone Sign Sheeting: Fluorescent Prismatic Retro-Reflective Sheeting - P. Miller**

At the February 2, 1995, meeting, EOC approved the implementation of Phase I to upgrade reflective sheeting on construction zone signs for all freeway projects, as determined by a team from Construction, Design and Traffic & Safety beginning July 1, 1995. The Construction Zone Advisory Committee (CZAC) was directed to monitor and evaluate Phase I and determine when to implement Phase II and Phase III.

ACTION: Construction is charged to conduct an evaluation of the fluorescent prismatic retro-reflective sign sheeting material during this construction season.

(Signed copy on file at M&T)
Calvin Roberts, Secretary
Engineering Operations Committee

cc EOC Members
District Engineers

G. H. Grove	G. J. McCarthy	L. K. Heinig	T. Adams
E. D. Winkler	D. L. Coleman	W. C. Turner	D. L. Smiley
L. W. Martin	H. J. Nyquist	R. W. Muller	R. E. Nordlund
L. E. DeFrain	G. L. Mitchell	J. E. Norton	C. W. Whiteside
I. B. Patel	C. G. Cantrell	M. Newman	A. G. Ostensen
J. Kelsch	G. J. Bukoski	R. D. Till	J. Becsey